DOCUMENT RESUME

ED 285 944 UD 025 738

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TITLE Achievement Trends for Black School Children, 1970-1984.
INSTITUTION North Carolina Univ., Chapel Hill. L.L. Thurstone Psychometric Lab.
PUB DATE 8 May 87
NOTE 22p.; Paper presented at a Colloquium of the Yale Bush Center and Yale Child Study Center (New Haven, CT, May 8, 1987). Charts may not reproduce well due to marginal legibility.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Gains; *Black Students; Differences; Economically Disadvantaged; *Educational Trends; Elementary Secondary Education; Longitudinal Studies; *Mathematics Achievement; Racial Differences; *Reading Achievement; Regional Characteristics; Rural Urban Differences

ABSTRACT

This paper analyzes data on trends of black student achievement from the National Assessment of Educational Progress (NAEP). Focus is placed on reading and math. Eleven graphs are provided and analyzed to discern trends for population estimates of average reading and math achievement scores for black and white school children at ages 9, 13, and 17. Among the major findings are the following: (1) while average differences between achievement scores for white and black students remain large, their size has diminished somewhat, particularly for cohorts born more recently than 1964; and (2) trends in white-black differences in reading performance differ negligibly by region of the country, but do display some differences by type of community. The greatest narrowing of the gap has occurred for rural children, for whom initially the differences were largest. In the most recent assessment in 1984, a reversal of trend occurs for rural as well as for disadvantaged urban children, especially for 9-year-olds, showing the impact of increased black unemployment and poverty and the low priority the Federal administration places on programs for the needy and on civil rights issues. (KH)

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ACHIEVEMENT TRENDS FOR BLACK SCHOOL CHILDREN, 1970 to 1984

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Achievement Trends for Black School Children, 1970 to 1984

Lyle V. Jones*

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Among the factors that influence a child's achievement in school are the student's achievement aspirations, which are largely determined by the expectations of the student's community -- especially family and peers. Perhaps in circumstances where cultural and peer influences fail to support the importance of school achievement, such support from within the family becomes even more important. In this colloquium on the black family, then, it is relevant to look at the trends over time in school achievement for the nation's black students and, if there have been systematic changes, to ask what factors might account for them.

The basic data on trends of school achievement come from the National Assessment of Educational Progress (NAEP). NAEP is a periodic assessment of a national probability sample at three ages, 9, 13, and 17, in reading, mathematics, writing, science, citizenship and social studies, literature, music, art, vocational education. At each age, common exercises were used and common administrative conditions were employed in successive assessments. Here we focus on reading and on math, the most frequently assessed subjects. Evidence from other subjects is consistent with evidence from reading and mathematics.

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* A talk prepared for delivery at a Colloquium, "Black Families and Public Policy: Historical and Contemporary Perspectives," Yale Bush Center & Yale Child Study Center, May 8, 1987.

What are the trends?

In a series of graphs, I shall display trends for population estimates of average reading and math achievement scores for black and white school children at ages 9, 13, and 17. Unless otherwise noted, the graphs will show results by year of birth of the students.

[Each "*" in headings below refers to an Exhibit.]

* NAEP Reading and Math, Black and White 9-year-olds.

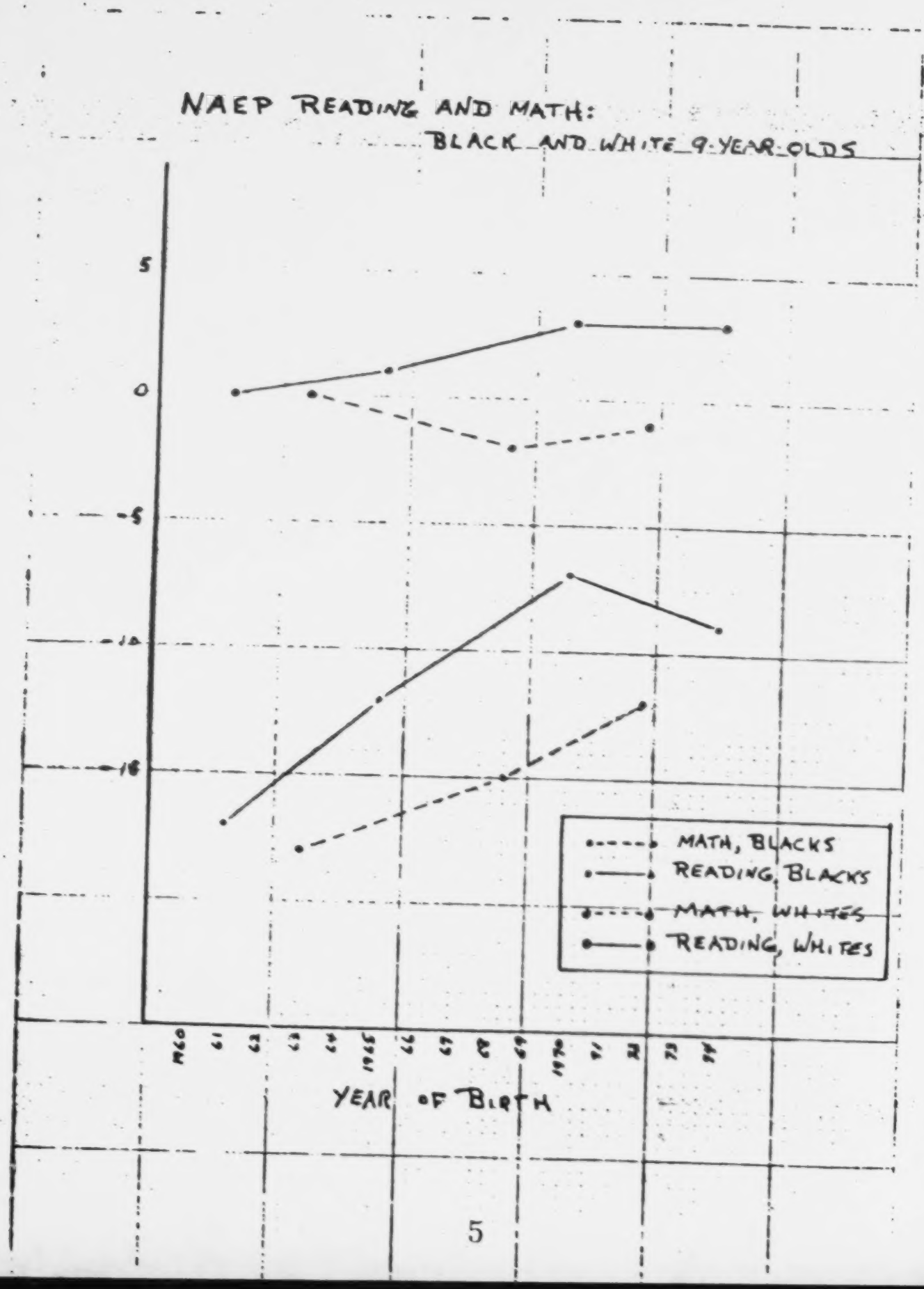
The initial average percent-correct score for white children is assigned a value of 0; other average scores are presented as deviations from that value in percentage of correct answers to common exercises. Over the first three of four reading assessments (of 1971, 75, and 80), and over all three assessments of math, average scores for blacks improved at a more rapid rate than for whites. A reversal appears for the trend for reading from 1980 to 1984 for students born in 1974 rather than in 1970.

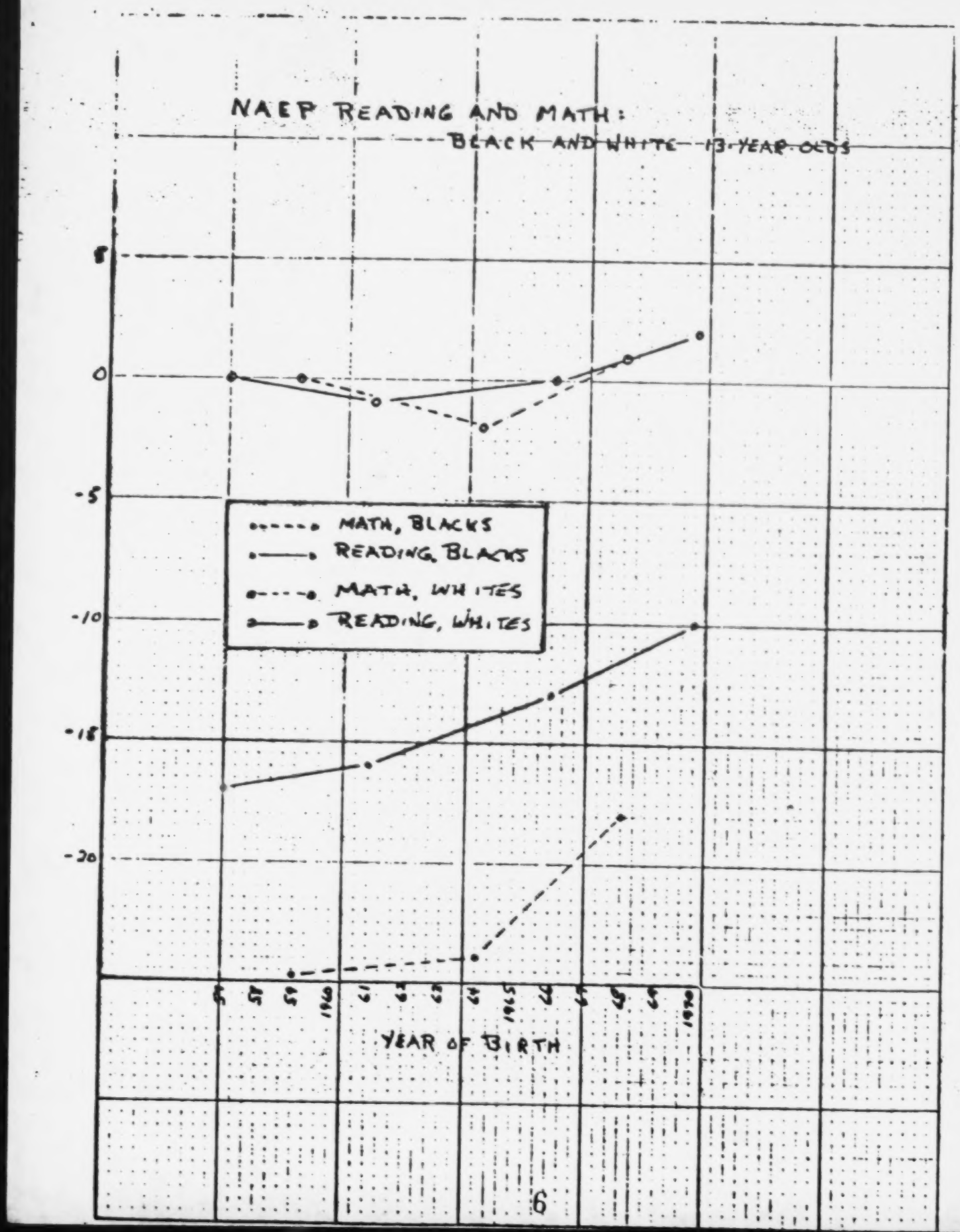
* NAEP Reading and Math, Black and White 13-year-olds.

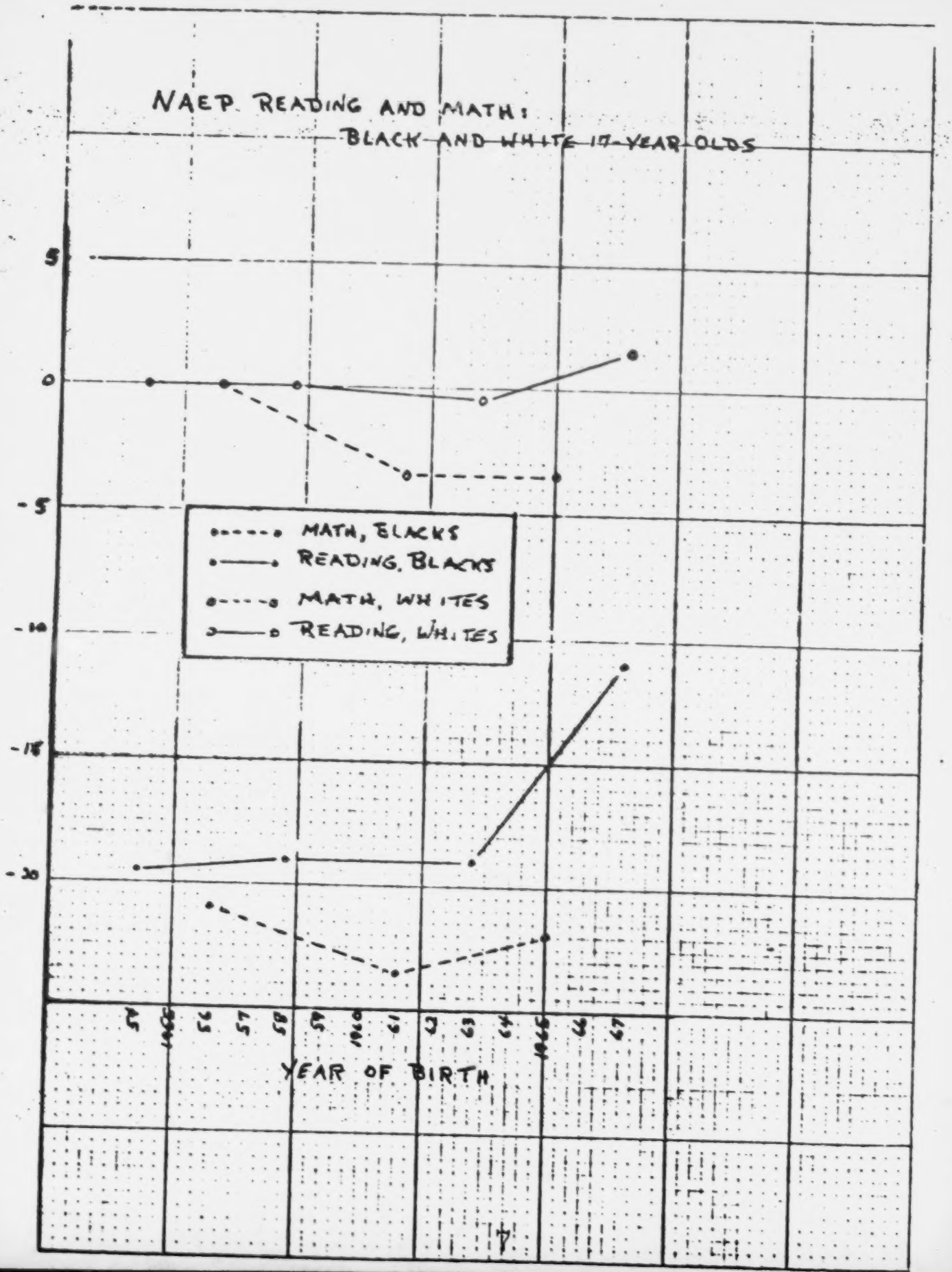
As for 9-year-olds, changes in average achievement for white students are small, while those for black students are larger and consistently positive, especially for more recent years.

* NAEP Reading and Math, Black and White 17-year-olds.

Only for the latest year of the series does the gap narrow between average white and black achievement scores, and there more strikingly for reading than for math. The failure of gains in mathematics for black students may result from continuing low levels of black enrollment in high school mathematics courses, Algebra I or above. For 1982 high school seniors, 30% of black students failed to have enrolled in such courses, compared with 15% of white students. A variety of research has demonstrated a strong relation between mathematics test scores and enrollment in such courses.


NAEP READING AND MATH:
BLACK AND WHITE 9-YEAR-OLDS
5
0
-5
-10
-15
MATH, BLACKS
READING, BLACKS
MATH, WHITES
READING, WHITES
YEAR OF BIRTH


NAEP READING AND MATH:
BLACK AND WHITE 13-YEAR-OLDS
8
0
-5
-10
-18
-20
MATH, BLACKS
READING, BLACKS
MATH, WHITES
READING, WHITES
1960
1965
1970
YEAR OF BIRTH


NAEP READING AND MATH:
BLACK AND WHITE 17-YEAR-OLDS
5
0
-5
-10
-15
-20
MATH, BLACKS
READING, BLACKS
MATH, WHITES
READING, WHITES
56
57
58
59
1960
61
62
63
64
1965
66
67
YEAR OF BIRTH

At all three ages, higher black achievement scores appear for birth years after 1963-64. This may be seen more clearly for results from the reading assessments consolidated over the three ages.

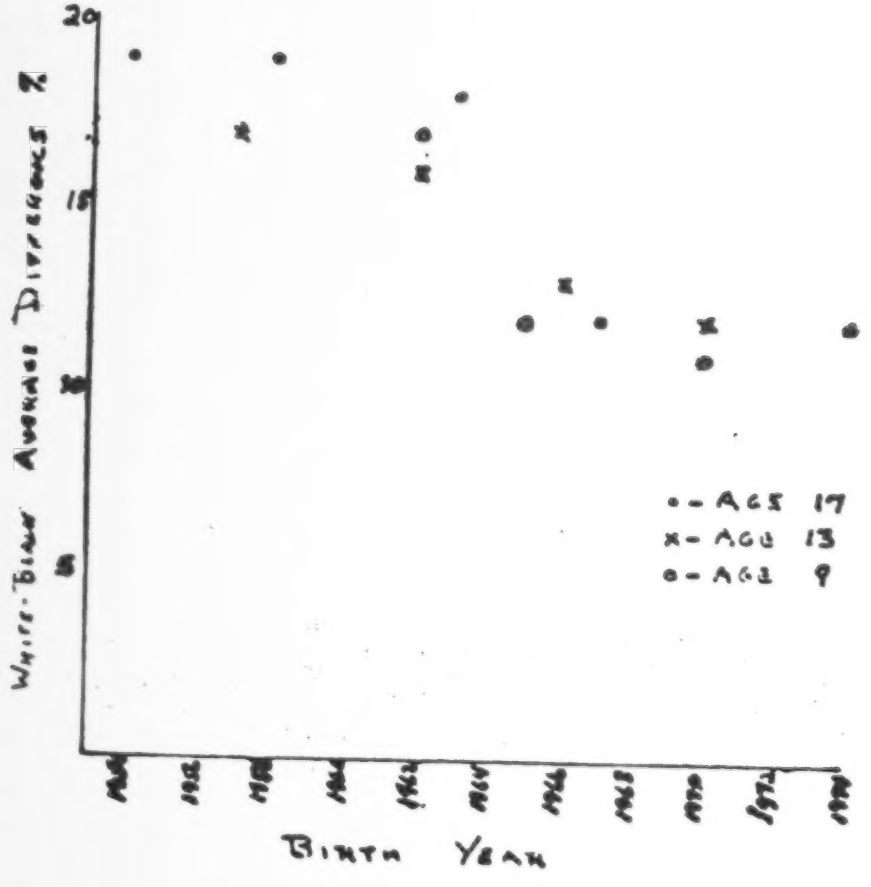
* Average White-Black Differences in NAEP Reading Scores by Birth Cohort.

The most striking change begins for black students born in 1964 or later. Note that many black students born since 1964 participated in preschool or early school programs designed to give them a good start in schooling. Also, black students born since 1964 were more likely than earlier cohorts to have begun schooling in integrated classrooms, as a consequence of school desegregation in the Southeast in 1970.

For 17-year-olds, other data may be cited, in the form of information about achievement test scores obtained from a national sample of high school seniors in 1972, the National Longitundinal Study, compared with scores on the same or similar tests for high school seniors of 1980, from High School and Beyond. Results on white-black average differences on reading and math tests are consistent with results from NAEP data.

Conclusion: While average differences between achievement scores for white and black students remain large, their size has diminished somewhat, particularly for cohorts born more recently than 1964.

AVERAGE WHITE-BLACK DIFFERENCES
IN NAEP READING SCORES BY BIRTH COHORT



Are the trends the same or different for relatively high- and low-scoring student groups?

The data here come from The Reading Report Card of NAEP reading assessments with all scores reported on a common scale developed at ETS using item response theory (IRT). That NAEP report shows not only average reading proficiency scores for blacks and whites, but also percentages of black and white students whose scores exceed each of several specific score levels. Using these data, we may estimate selected percentile scores separately for black and white students -- I've chosen 95th, 75th, 50th, 25th, and 5th percentiles -- and look at trends separately at each of these percentiles.

* for age 9, plotted against assessment year

The trends for the 50th percentile, the median, are nearly identical to those for mean trends in reading performance that were viewed earlier, as would be expected for symmetric distributions. Spreads of the distributions (standard deviations) are nearly identical for black students and white students, at each year.

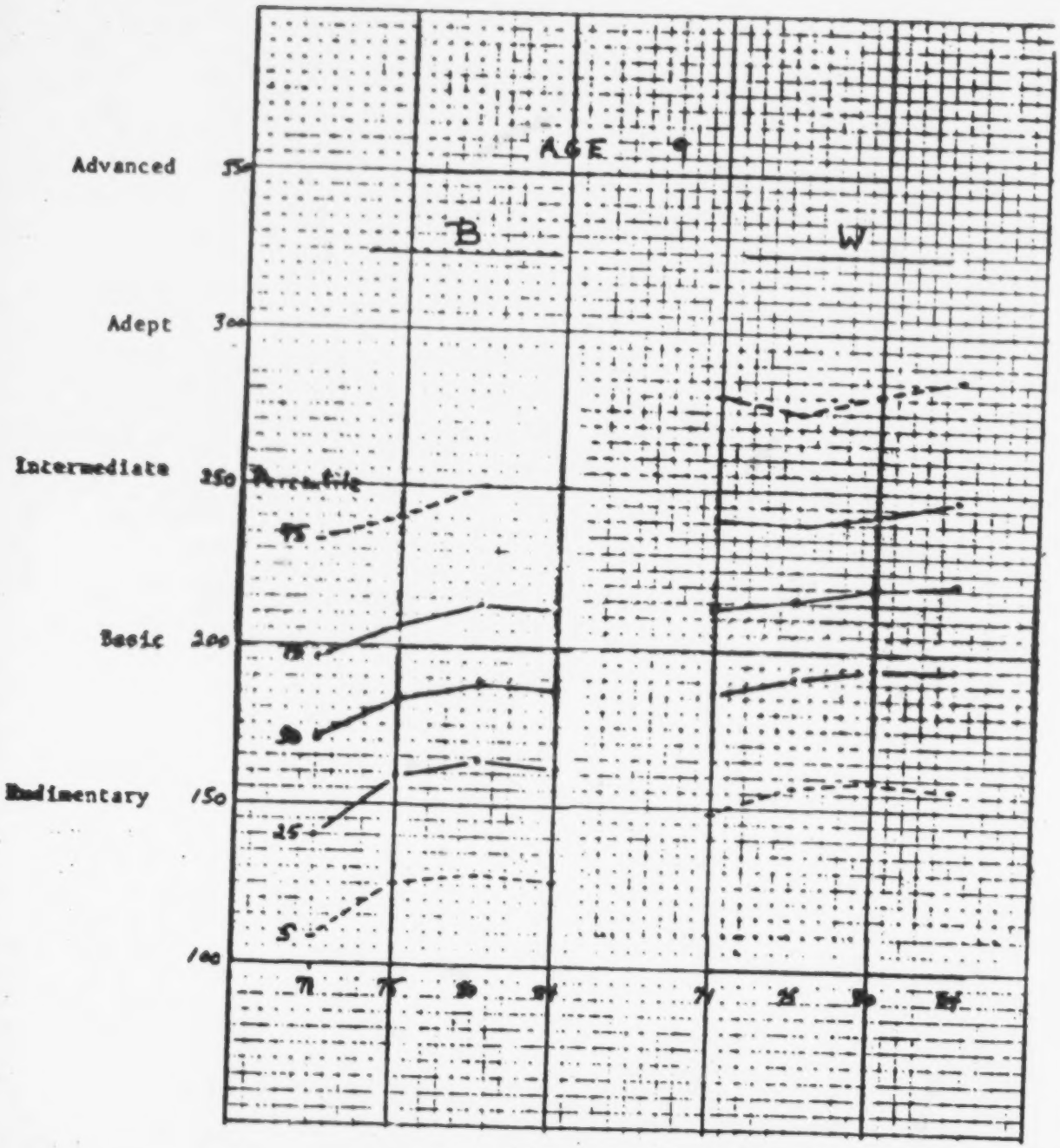
Between 1971 and 1975, both for blacks and whites, increased reading skill was more pronounced at lower than at higher percentiles. Since 1975, just the opposite is true. Until 1980, improvement of average scores for blacks is evident at all levels of the distribution.

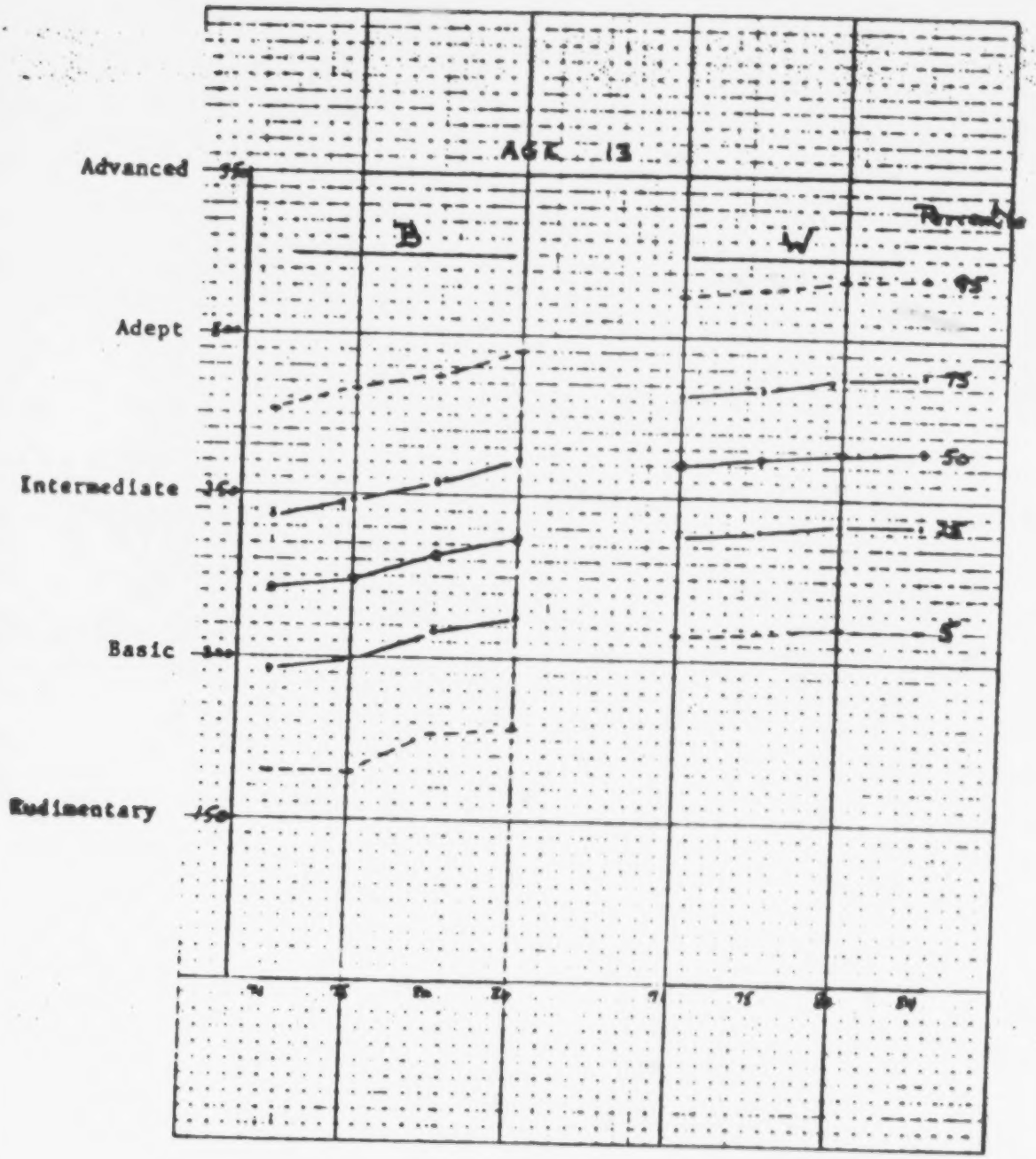
* for age 13

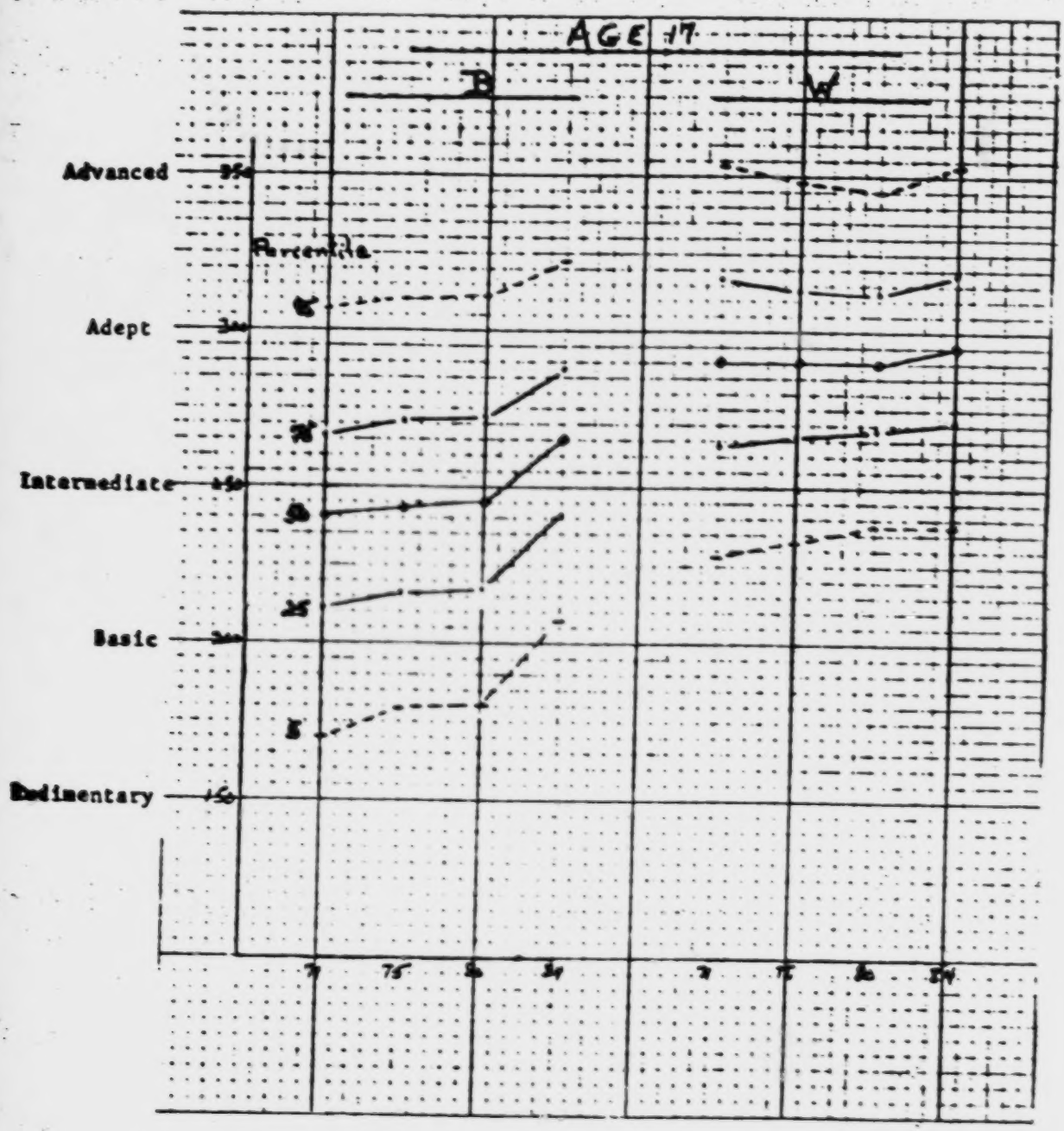
The trend for black students is up throughout the range.

* for age 17

The trend for blacks is up at each selected percentile. For blacks between 1980 and 1984, improvement is greater for lower percentiles, and variability is reduced for 1984, due primarily to


AGE 9
B
W
Advanced
Adept
Intermediate
Basic
Rudimentary
350
300
250
200
150
100
Percentile
95
75
50
25
5


Advanced
Adept
Intermediate
Basic
Rudimentary
AGE 13
B
W
Percentile
95
75
50
25
5


AGE 17
B
W
Advanced
Adept
Intermediate
Basic
Rudimentary
Percentile

fewer low scores. (An increased school dropout rate for black students since 1980 probably is exerting an influence here.)

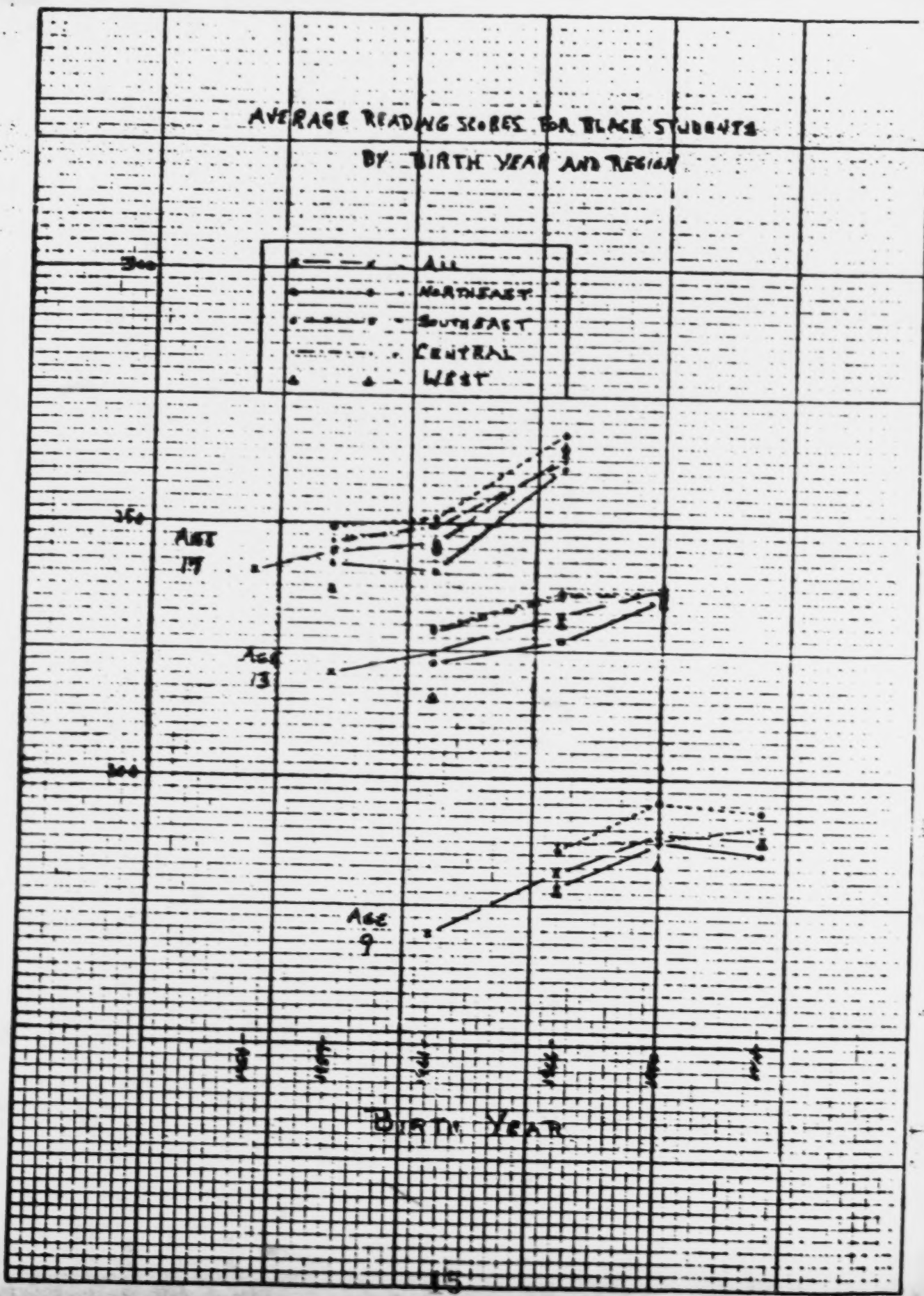
Conclusion: The improved reading performance for black students in recent years is reflected by more high scores as well as by fewer low scores. Improved average scores for black children are seen at all levels of reading skill.

Are gains similar or different for different demographic groups of black students ?

Thanks to National Assessment staff members at ETS, especially to Dr. Albert E. Beaton, results were assembled recently for IRT reading scores of black and white students cross-classified by region, type of community, and several other background variables. Let us look at average reading achievement trends for black students and at white-black mean differences for the various levels of these variables.

* Average IRT reading scores for black students by birth cohort and region.

Because the widespread school desegregation of 1969-70 was most dramatic in the South, if school desegregation had exerted a dominant influence on the performance of black students, we might expect a differential gain in performance for black students in the Southeast compared with other areas of the country. The data are ambiguous regarding this hypothesis. At each age, initial average performance is lower for blacks in the Southeast and the West than in the other regions, and at ages 17 and 13, regional differences are negligible for the most recent assessment. At age 9, however, regional differences in the 1984 assessment are about as great as they were earlier, and at each age, the trends in black performance are remarkably similar from region to region.


AVERAGE READING SCORES FOR BLACK STUDENTS
BY BIRTH YEAR AND REGION
All
NORTHEAST
SOUTHEAST
CENTRAL
WEST
300
260
AGE 17
AGE 13
AGE 9
BIRTH YEAR

* Average white-black IRT reading score differences by birth cohort and region.

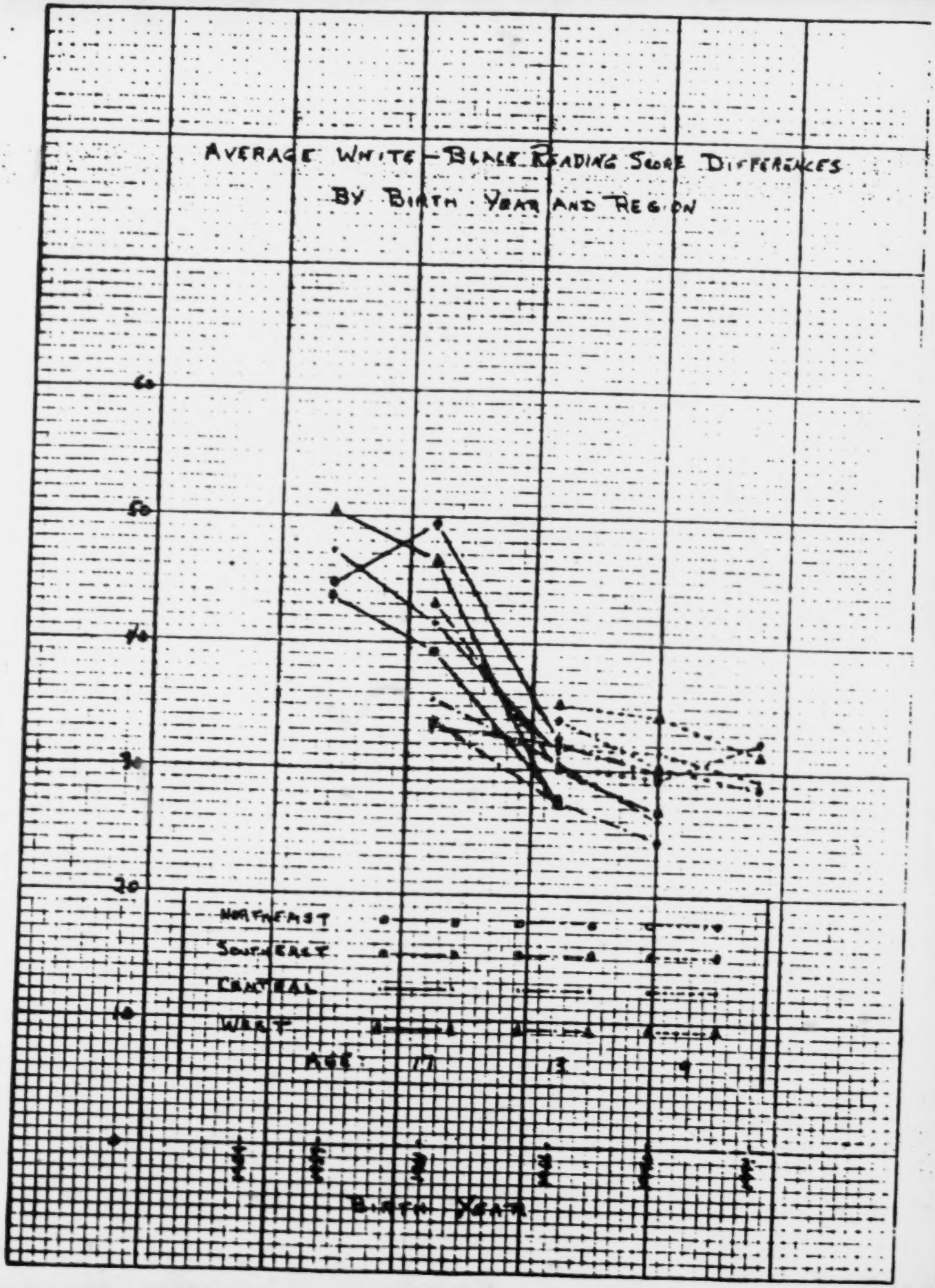
An alternative portrayal is that of trends in average white-black differences in reading score by region. Here, again, the similarity of trends in the four regions is rather striking, except for an increased white-black difference for Southeastern 9-year-olds in 1984 compared with 1980 (birth year 1974 compared with 1970).

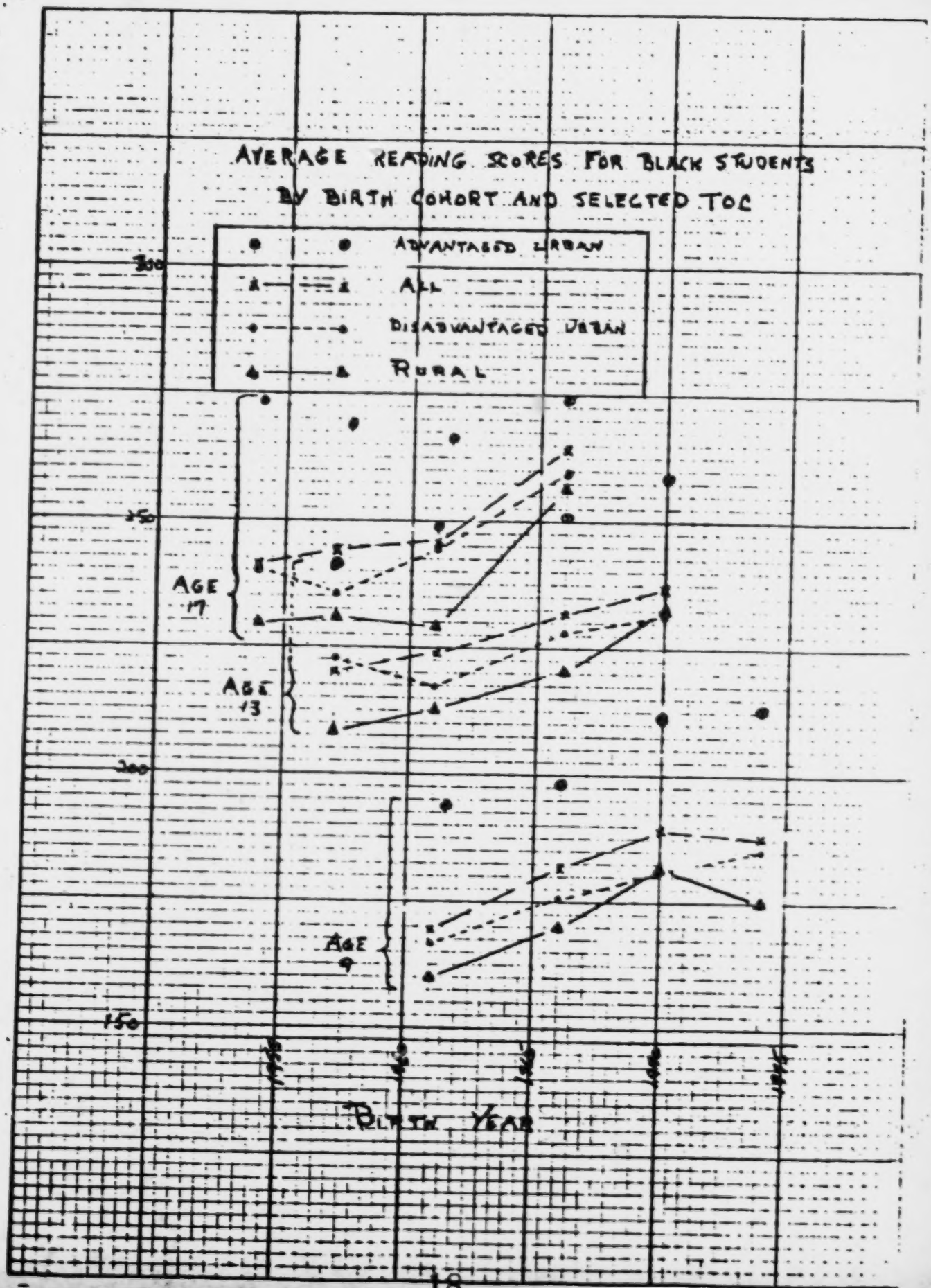
* Average IRT reading score for black students by birth cohort and selected type of community.

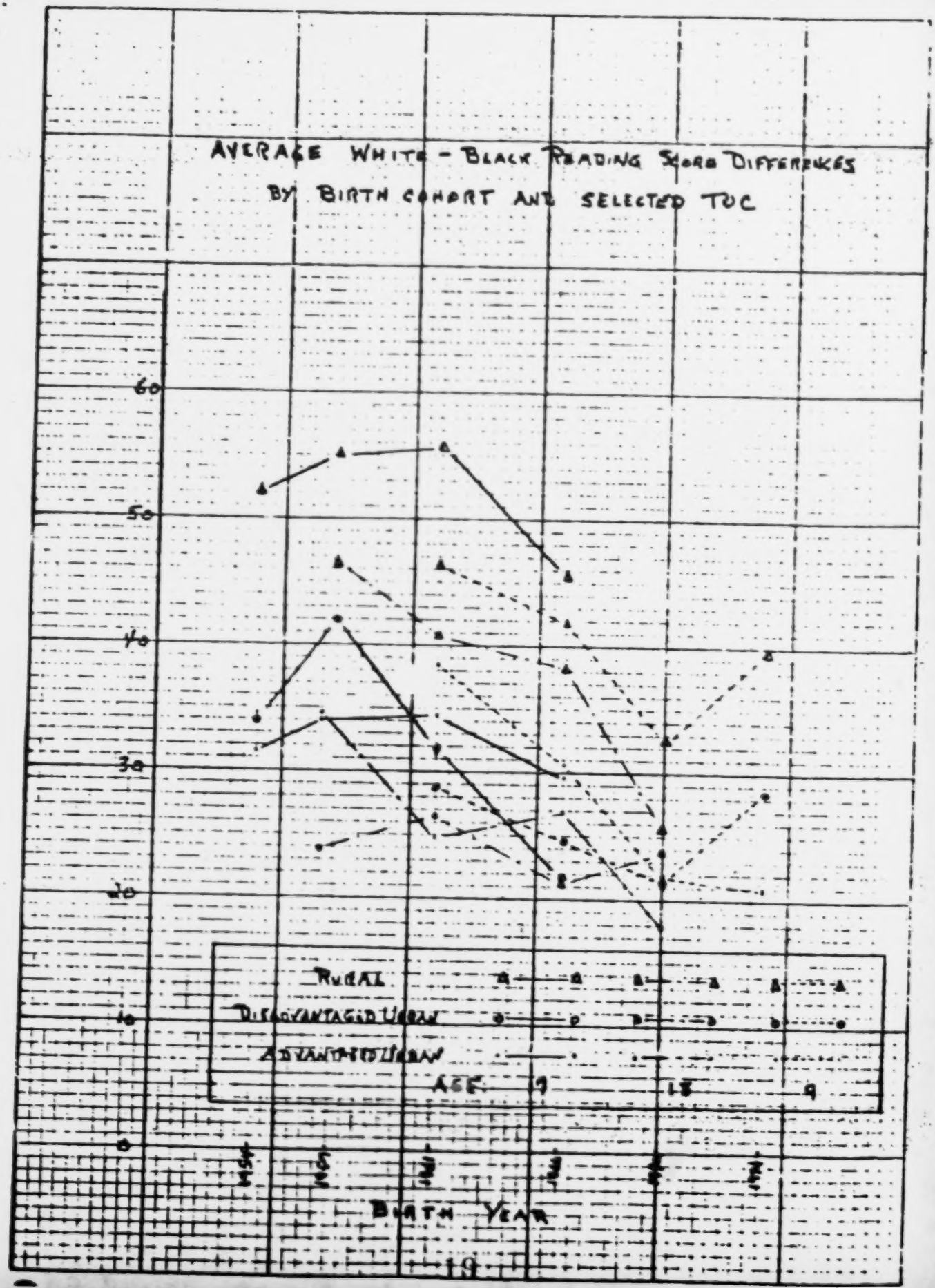
Since its inception, NAEP has reported results by type of community (TOC), with special attention to three extreme categories, extreme rural, disadvantaged urban, and advantaged urban. Each of these categories is defined so as to contain about 10 percent of the nation's school children. However, among blacks, about 8% are classed as rural, about 30% are disadvantaged urban, and 5% are advantaged urban. Noteworthy, here, is the consistent and substantial advantage in reading test scores for advantaged urban blacks at each age and each birth year. Also, at each assessment age and for each type of community, with a single exception since birth year 1961, average reading scores for black students have shown monotonic improvement. The exception appears for rural blacks, age 9, between assesment years 1980 and 1984, where reading scores declined.

* Average white-black IRT reading score differences by birth cohort and selected type of community.

Consistently, white-black average performance differences have been greater for the rural than for the urban populations. However, for rural children born in 1970 compared with children born ten years earlier, the difference in white-black performance is seen to have


AVERAGE WHITE-BLACK READING SCORE DIFFERENCES
BY BIRTH YEAR AND REGION
60
50
40
30
20
10
NORTHEAST
SOUTHEAST
CENTRAL
WEST
AGE 17
13
9
BIRTH YEAR


AVERAGE READING SCORES FOR BLACK STUDENTS
BY BIRTH COHORT AND SELECTED TOC
ADVANTAGED URBAN
ALL
DISADVANTAGED URBAN
RURAL
300
250
200
150
AGE 17
AGE 13
AGE 9
BIRTH YEAR


AVERAGE WHITE - BLACK READING SCORE DIFFERENCES
BY BIRTH COHORT AND SELECTED TOC
60
50
40
30
20
10
0
RURAL
DISADVANTAGED URBAN
ADVANTAGED URBAN
AGE: 9 13 9
BIRTH YEAR

decreased more dramatically for rural than for urban children or for the nation as a whole. Note, however the increases in white-black difference in rural and disadvantaged urban areas between birth years 1970 and 1974. It is disquieting to observe evidence for increases in the white-black achievement gap for the period 1980 to 1984 for rural and disadvantaged urban children.

Conclusion: Trends in white-black differences in reading performance differ negligibly by region of the country, but do display some differences by type of community. The greatest narrowing of the gap has occurred for rural children, for whom intially the differences were largest. In the most recent assessment in 1984, a reversal of trend occurs for rural as well as for disadvantaged urban children.

Discussion and wrap-up.

In a relatively short period, from 1970 to 1980, the gap between average academic performance of white and black school children narrowed appreciably. The effects are visible for all levels of ability, for all regions, and for all types of community. The data suggest that the largest impact was in rural areas. Prior to 1970, predominantly black schools in rural school districts often provided inadequate schooling. The 1970s were years of improving schooling for rural black children, especially in the South; also, programs initiated under the War on Poverty were providing benefits to black rural children and their families. It is not surprising, then, to discover that the strongest effects since 1970 are seen in those rural districts.

We may not safely conclude from the evidence that achievement gains across cohorts of black students are due simply to school desegregation or simply to social programs initiated in the 1960's that were designed to increase opportunities for minority citizens. However, the results do present a major challenge to commentators who judge that these programs failed. The programs initiated in the late 1960s were important components in a dramatic change in society with respect to the status of black citizens. Only 20 years ago, most schools that served black children were totally segregated. Career opportunities for black citizens were severely limited. Since then, given both a greater range of educational opportunities and a less restricted set of career choices, larger numbers of black students and their families have recognized that educational attainment serves to maintain options for attractive careers. The barriers were lowered, incentives and expectations rose, and achievement gains resulted.

In 1983, 46% of the nation's black children were in families that were below the poverty level, compared with 17% for white children. Even though the black-white difference in earnings for employed workers decreased over the previous two decades (Farley, R. Blacks and Whites), in 1984, for every $100 a white family received in income, a black family received $56 (U. S. Census Bureau). Yet, federal funding for programs for the poor was reduced between 1980 and 1984. In this context, it is of concern to observe an elevated white-black difference in reading achievement scores for inner city and rural blacks in 1984 than in 1980. Of concern also are results compiled by Robert Hauser on college enrollments. In 1977, equal percentages of black and white high school graduates attended college

within a year of completing high school. Excluding those in military service, the figures were 50% for each group. Eight years later, in 1985, corresponding percentages were 42% for blacks, 59% for whites. (Data are from October Current Population Surveys, U.S. Census Bureau.)

Areas of undeniable progress for blacks during the most recent two decades are educational achievement, educational attainment, and occupational status. The most recent evidence suggests a reversal of the trend for educational achievement, especially for 9-year-old rural and inner-city blacks, and of the trend for college enrollment of black students, during a short period of years in which rates of black unemployment and poverty have increased, while our federal administration has assigned low priorities both to programs for needy citizens and to civil rights issues. The good news, then, of a narrowing gap in white-black school achievement during the 1970s, is coupled with troublesome signs about trends for the most recent years.